

REMARKS/ARGUMENTS

In the Final Office Action mailed on July 27, 2006, the Examiner objected to Claims 1-20 of this application under 35 U.S.C. 103(a) as unpatentable over Smithyman (USPN 6,047,497) in view of Blatchford (Australian Patent Application No. 32801/95). The Examiner contends that it is obvious to perform a batch process continuously, or a continuous process in a batchwise manner.

In the instant Amendment, the Applicant cancel **all** pending Claims 1-20, and introduce new claims 24-44.

The newly added Claims 24-35 and 38-44 correspond to Claims 1-21 as introduced in the Preliminary amendment filed on October 19, 2001, at the time of the national entry in the US of the International application PCT/AU00/00336. The newly added limitation “(*means for*) *washing at least part of the absorption means to remove and degrade the absorbed fumigant*” in independent Claims 24 and 38 is supported by the specification as originally filed (see page 10, lines 17-27) and by originally filed Claim 15. New Claims 36 and 37 are based on the disclosure in the specification as filed on page 10, lines 17-27.

Rejection under 35 U.S.C. 103(a)

In the Final Office Action of July 27, 2006, the Examiner considered the independent Claims 1 and 13 to be unpatentable in view of the combination of the features of the apparatus and method shown in US 6,047,497 (*Smithyman*) when viewed in combination with AU 32801/95 (*Blatchford*).

The Applicant has carefully reviewed each of the cited documents and can find no logical reason why a skilled person would combine the teachings in either of them to arrive at the present as now claimed. To establish whether a claim is obvious, the prior art references alone or in combination must teach or suggest all of the claimed features and there must be a reasonable expectation of successfully arriving at the claimed invention without difficulty.

The present application is for an apparatus which comprises a means to degrade absorbed fumigant, and for a method which includes the step of degrading the absorbed fumigant. This makes it possible to use a relatively small-scale, mobile absorption unit. If the collected fumigant on the absorption means was not degraded regularly, its absorption capacity would be quickly exhausted. Thus, the step of chemical degradation of fumigant in the present invention allows the use of a compact absorption unit which is of a size that is very suitable for use with conventional shipping containers. Such an absorption unit can be portable like the shipping containers are. There is no need for large or complex machinery such as a steamer or a heating kiln to regenerate the absorbent material. Instead a chemical degradation reaction achieved by washing can be carried out simply and at room temperature by a single operator. This ensures that the absorption unit is simple to use and re-use.

The new independent Claim 24 (corresponding to Claim 1 filed in the Preliminary Amendment of October 19, 2001) includes an additional limitation: *“means for washing at least part of the absorption means to remove and degrade the absorbed fumigant”*.

Similar, independent Claim 38 corresponding to Claim 13 of the Preliminary Amendment, includes the step of: *“washing at least part of the absorption means to remove and degrade the absorbed fumigant”*.

Basis for the above claim amendments is located in the original specification as filed in the International application PCT/AU00/00336 and published as WO 00/62607. For example, a chemical degradation of methyl bromide when contacted with a solution of sodium thiosulphate is described at page 10, lines 17 to 27:

“The methyl bromide attaches to the activated carbon of the absorption bed 150 prior to discharge of the fumigant/gas mixture from the fumigation apparatus. The absorption bed 150 is periodically washed with a scrubbing solution, such as sodium thiosulphate. In this embodiment scrubbing of the absorption bed 150 with sodium thiosulphate yields bromide and sodium methylthiosulphate which are non-toxic salts which can be discharged safely to the environment. Thus, the methyl bromide gas is degraded following its fumigation and then extraction from the fumigation apparatus.”

Also the products of the degradation of methyl bromide when contacted with a solution of sodium thiosulphate are described at page 5, lines 31-36:

“Typically the method of fumigating produce further comprises washing at least part of the absorption bed to remove the absorbed fumigant. More typically the absorption bed is washed with a scrubbing solution, such as sodium thiosulphate, to yield one or more salts, such as bromide and sodium methylthiosulphate.”

None of the cited prior art documents, alone or in combination, discloses or suggests the step of washing the absorption means (such as activated carbon) to remove and degrade the absorbed fumigant so as to permit the activated carbon to be reused.

For example, in US 6,047,497 (*Smithyman*) there is disclosure of a vent 66 which preferably includes a scrubber or filter 68 for removing fumigants from the exhaust gases flowing to the ambient air (column 7, lines 24-27). However *Smithyman* neither discloses nor suggests any means for *washing* the absorption means to *remove and degrade* any of the absorbed fumigant.

Also, in AU 32801/95 (*Blatchford*) there is disclosure of an adsorber or absorber, which is “regenerative, for example zeolites” (page 17, 2nd last paragraph). However there is no suggestion of any means for *washing* the absorption means to *remove and degrade* the absorbed fumigant.

Zeolites operate by absorbing or adsorbing a species of interest and then, when fully loaded, can be regenerated by being stripped of the absorbed or adsorbed species. This stripping can be by passing the loaded zeolite through steam, or by heating the zeolite, or by some other equivalent technique for *physical displacement* of the species.

By contrast, the present invention claims a washing technique for removing and degrading the absorbed species.

In the instant specification, the main problem to be solved when using fumigation apparatus is described on page 1, lines 26-32 :

“Current methods of fumigation under blankets are crude, ineffective at fully eliminating insect infestation... and highly dangerous from an occupational health standpoint since the gases used for effective fumigation are extremely toxic”.

Because the fumigant used in known fumigation apparatus can be toxic to operators and problematic for the environment, the present inventor devised a new method for fumigation and then for fumigant capture and degradation. The instant invention offers the benefit of producing non-toxic salts which can be safely discharged to the environment. Therefore:

“The fumigation apparatus is “environmentally friendly” in its fumigation and discharge of the fumigant” (page 11, lines 2-3).

The inventor has also succeeded in developing an apparatus for fumigation which is compact and can be easily integrated with a fumigation apparatus that uses the familiar ISO general purpose shipping container, known in ports throughout the world. Because of the special technical feature of degradation of the absorbed fumigant, the absorption means becomes of a size that is simple and convenient for a single operator to use/re-use. This can reduce operating costs by allowing recycling of the absorption material.

The Applicant asserts that the skilled person in the art of developing in-container fumigation apparatus would need some inventiveness to be able deduce the instant claimed invention from a combination of any of the cited prior art documents.

In view of the above, it is respectfully submitted that the application is now in condition for allowance which is earnestly solicited.

The Commissioner is hereby authorized to charge any additional fees which may be required in this application under 37 C.F.R. §§1.16-1.17 during its entire pendency, or credit any overpayment, to Deposit Account No. 06-1135. Should no proper payment be enclosed herewith,

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as by a check being in the wrong amount, unsigned, post-dated, other-wise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1135.

Respectfully submitted,

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